

19. UNUSUAL BIRD RECORDS FROM THE BOMBAY AREA

I spent from 10th to 14th December 1981 in northern Bombay and subsequently submitted a list of the birds seen, to Mr. H. Abdulali. He kindly pointed out that the following three records were somewhat unusual.

Anser indicus (Latham) Barheaded Goose

Three flew low over Powai Lake at 07.15 on 14th December, circled round the lake, but did not settle.

Buteo rufinus (Cretzschmar) Longlegged Buzzard

Single birds seen in flight over Borivli National Park on 13th December and over Powai on 14th December were identified as

belonging to this species. The former had a pale rufous tail and was probably an adult; the latter was a juvenile with a pale tail with dark terminal bars. Although Salim Ali and Ripley (1978) are dubious about the specific identification of Buzzards in the field, it seems worth recording these sightings in view of the increasing number of such records in the Bombay area.

Chlidonias hybrida (Pallas) Whiskered Tern

Two birds were seen regularly during my stay at Powai Lake. This species may well be a regular winter visitor, though records for December appear to be lacking.

MERLWOOD, THE AVENUE,
GUISBOROUGH, CLEVELAND,
ENGLAND, TS14 8EE,
February 16, 1982.

D. SUMMERS-SMITH

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20. GROWTH RATES IN SUB-ADULT GHARIAL *GAVIALIS GANGETICUS* (GMELIN) (REPTILIA, CROCODILIA)
(With a text-figure)

Bustard and Singh (1980) provided an outline of growth rates in young gharial from hatching to an age of 4.5 years. The only published data on growth of larger gharial are limited data provided on a male gharial reared at Nandankanan Biological Park, Orissa (Biswas, Acharjyo & Mohapatra 1978).

As a part of the State Crocodile Project, a gharial breeding pool was constructed at Nandankanan Biological Park, Orissa, in 1975, and three existing sub-adult gharial were introduced to this pool on 13 February 1976.

This group comprised of one male and two females. All three were from Mahanadi river, Orissa. The male was brought to the Park on 22 March 1963 at a length of 1.35 m. Its age at capture was subsequently estimated as 33 months (Singh 1978). The females were brought in November 1964 and November 1965 at lengths of 0.9 and 1.20 m and at estimated ages of 17 and 29 months respectively. From 1975 they were measured annually. Biswas *et al.* (1978) state that this male measured 2.5 m in January 1973 and 2.56 m in January

MISCELLANEOUS NOTES

TABLE 1

GROWTH OF ONE MALE AND TWO FEMALE SUB-ADULT/
ADULT GHARIAL (Length in m)

Year	Date of measurement	Length		
		Male	Female 1	Female 2
1975	31 January	2.56	2.48	2.45
1976	13 February	2.70	2.65	2.50
1977	11 December	2.72	2.96	2.73
1978	20 December	2.79	3.09	2.80
1979	15 December	2.84	3.12	2.82
1980	23 July	2.90*	3.17**	2.88
1981	23 March	—	3.25	3.00
Mean annual increment		6.8cm	12.8cm	9.1cm

* Killed in a conflict with an introduced male (Bustard and Maharana, in press, b) and measured following its death on 8 February 1980.

** Measured on 20 April 1980.

1974. The data, therefore, cover six years growth and are presented in Table 1 and Figure 1.

These data are of great interest in that the gharial were maintained in a large pool simulating the natural environment (Bustard and Maharana, in press, a) and Nandankanan is located within the natural distributional range of the gharial (Mahanadi river is only 5 km from the park). Hence growth rates following their introduction into the breeding pool are considered to closely approximate those occurring in nature.

It is interesting to compare the growth rates between the sexes (Fig. 1). At the start the male was slightly larger than either female. However, both females grew rapidly between

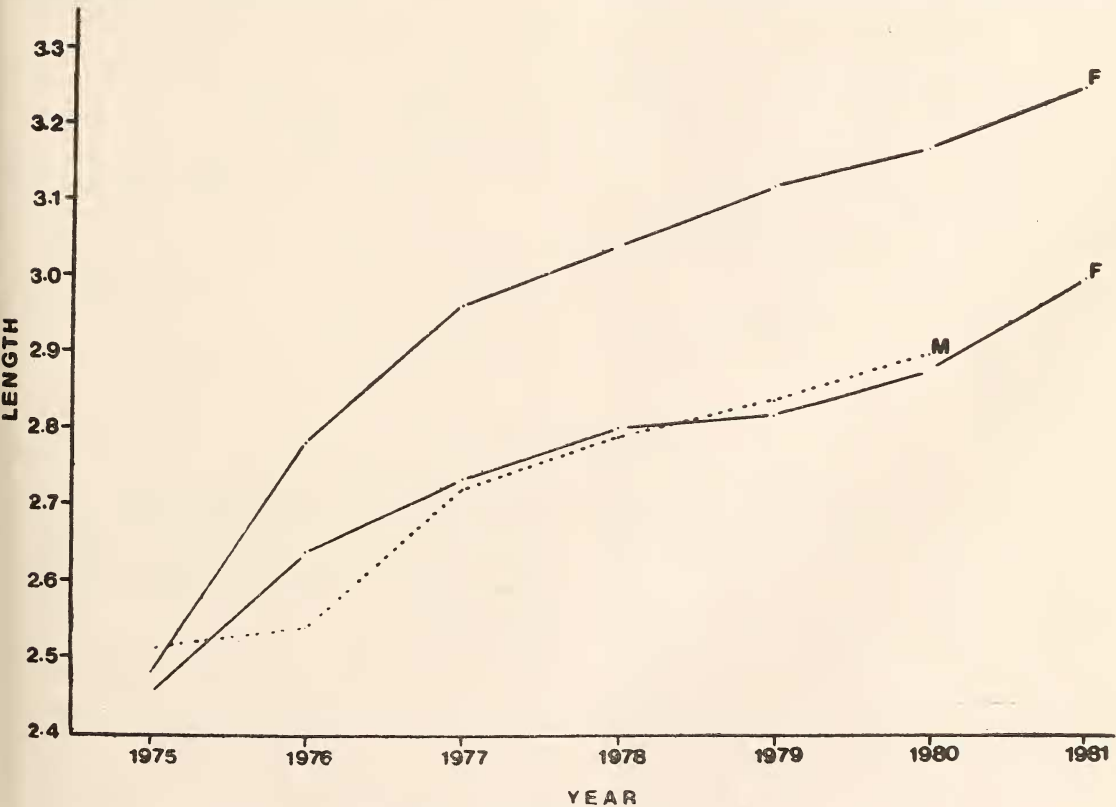


Fig. 1. Growth rates of sub-adult gharial between 1975 and 1981. F—female, M—male, length in metres. (see Table 1).

1975-76 whereas the male grew very slowly at this time. In the next year the male caught up with the second female and these two individuals grew at a similar rate thereafter. The first female, however, continued to grow more rapidly than the male throughout the study. This result is surprising, as in view of the much larger size of mature males compared to females, it is to be expected that males would show a faster growth rate. This was not shown in the present study. It may be thought that the rapid growing phase in males takes place in the early years of life and that this was already over in the case of this male when the observations commenced and it measured 2.70 m. Examination of the mean early growth rates for all three individuals using the size at time of capture together with year of capture gives a mean and growth between 1963 and 1975 of 11cm/year for the male. For the females, between their time

of capture in November 1964 and November 1965 it is 14.4 and 12.5 cm/year respectively. Failure of the male and indeed all three individuals to show more rapid growth in the early years may be explained on the basis of stunting (Choudhury & Bustard, in press).

It is not suggested that the size of gharial in the wild would have been similar to those of captive individuals at the same age, since, prior to the initiation of the Government of India Crocodile Project, most gharial showed markedly retarded growth (Choudhury & Bustard, in press). But growth rates during the period 1975-81 inclusive, when the gharial were in the large breeding pool and receiving adequate diet, are thought to reflect normal growth rates for sub-adult gharial of this size, that is, an average of 10 cm/year.

We thank Dr. L.A.K. Singh and Mr. B.C. Choudhury for their advice.

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June 24, 1981.

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